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15th INTERNATIONAL SEDIMENTOLOGICAL CONGRESS

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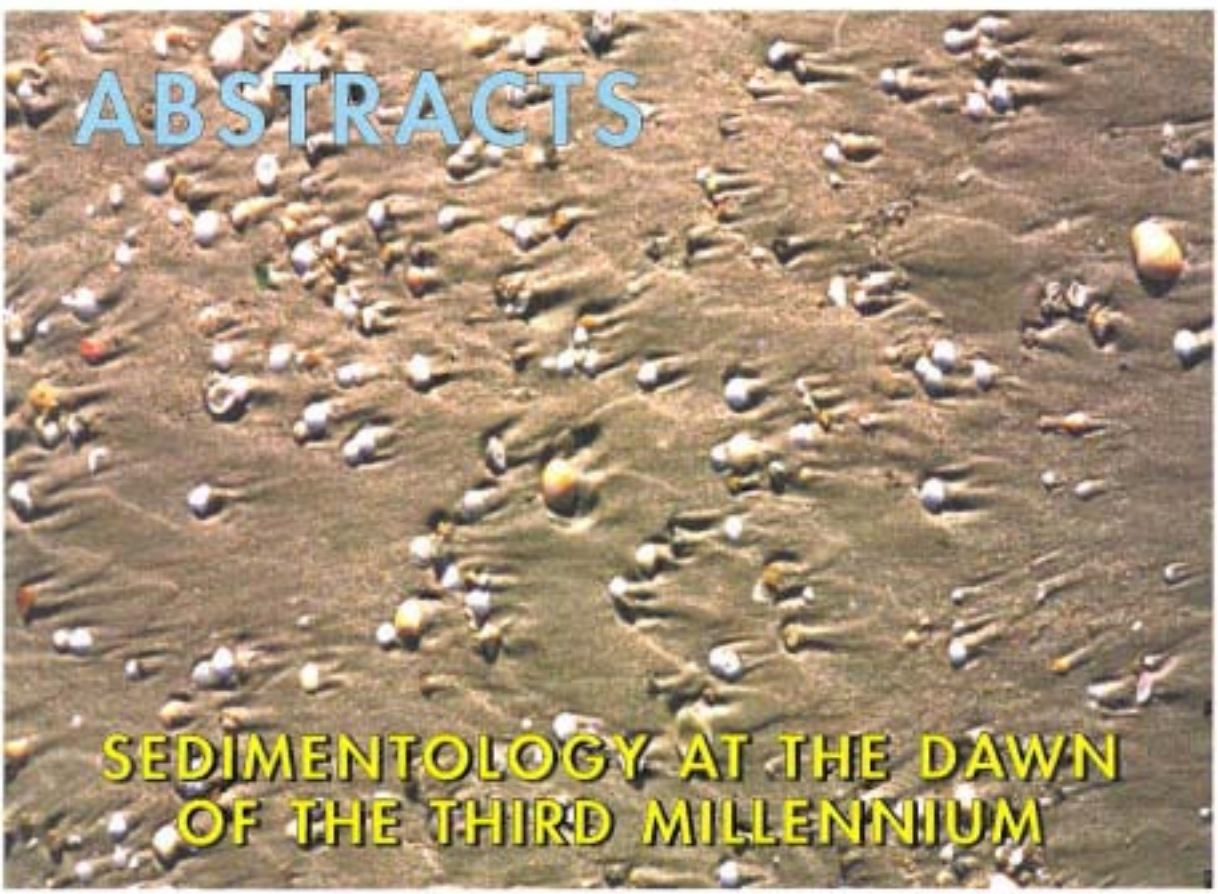

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Abstracts

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SCIENTIFIC PROGRAMME ACCORDING TO SESSIONS

THEMES

THEMES A. ANALYTIC TECHNIQUES. DATA PROCESSING AND REPRESENTATION

THEME G. GEOLOGY AND OCEANOGRAPHY OF CONTINENTAL MARGINS

formations seems to be the more sensitive sedimentary Litology to the gradient value, increasing its SGI when this value increases. Finally, the effect of weathering on siliciclastic material can be evaluated comparing the K/Q+K index in sandstone formotions (0.27 - 0.19) ond in the sonds (0.11 - 0.08), representing a decreose in feldspar of 15% aprox. with regard to total siliciclastics grains of the sediment.

COEVAL CARBONATE GRAINS IN MODERN FLUVIAL SANDS (IBERIAN RANGE, SPAIN): THE ACTIVITY OF A CONTINENTAL CARBONATE FACTORY

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Petrographic analysis in head stream sands derived from Mesozoic siliciclastic and carbonate rocks in the Iberian Range show a variable content in coeval carbonate materiol. These components are bioclasts, micritic and sparitic grains and coatings around grains. Generally, their origin is related to the erasion of recent carbonate deposits as cool freshwater tubas, calcimorphic paleasols and speleothems. These carbonate deposits can be mainly associated to carbonate precipitation in a karstic environment developed in severol formations outcropping in the work area. This study is a tentative characterisation of this coeval carbonate material based on a detailed petrographic analysis in coarse, medium and fine sand fractions.

The presence of coeval carbonate grains in the sediments produces an increose in volume of the finer sand fraction, where these components tend to concentrate. Occasionally their content constitute more than 90% of sediment volume in this fraction. Whereas siliciclastic and carbonate grains derived from the parent rocks prevail in the coarse sand fraction. These grains show abundant coatings of coeval carbonate with variable textures.

Textural and compositianal criteria permit to describe four categories of coeval carbonate grains: micritic, sparitic, coated and bioclasts. The most frequent coevals are **micritic grains** which show a spongy and porous microstructure, sometimes preserving isolated algal filaments or algal colonies of fan-like character. The origin of these coeval grains ore ossociated to the erosion of recent tufa deposits. Also laminated micritic grains occur os ancolite (coated groins) or stromatolite remains. Other kind of micritic coeval are paleasol frogments which are recognised as hard micritic grains. The **sparite grains** are abundant and generally are the result of algal micrite sparitization. These grains can preserve a fan-like microstructure formed by algal filaments (similar to those described in micritic grains) or a prismatic and radial microstructure thot characterises *Microcodium* colonies. In addition, sparite grains without microstructure appear like isolated or cluster crystals with an uncertain origin. The **coated grains** are very common and are constituted by a nucleus plus a caoting of coeval corbonote (micritic and/or sparitic coatings). When the nucleus correspond to extrabasinal groins, os quartz, feldspar or carbonate rock fragments, this kind of grain had been named as *compound groins* (Arribas *et al.*, in this meeting), and when the nucleus ore intrabasinal in origin we have named os *cooted coeval grains*. Coatings are formed by micritic or sparitic carbonate in as single or multisteady envelopments and their origin is related with algal activity that may form olgol-mots on the channelized deposits. The identified **bioclasts** ore charophytes (stems and small reproductive gyrogonites) and gostropods.

Although these coeval components hove been well defined in basis on textural and compositional criteria, some problems exist when grains with different origin show similar microfabrics. This convergence of microfabrics is common in grains with a laminated microstructure os: debris of stromatalites, oncolites, rhizocretions and speleothems. In addition, early diagenetic processes as cementation or recrystallization, are very frequent in continental environments. These processes may produce an increase of crystal size of carbonate deposits, and then may provide coeval grains with very similar textures to those grains derived from carbonate source rocks. This problem is greatly dramatised in petrographic analysis carried out on ancient sandstones deposits, when general diagenesis mask the primary textures. Classically, authors hove used textural ond compositianal criteria as: coeval bioclasts, soft appearance, irregular contours, groin-size coarser than the detrital grains and lack of recrystallization and cementation processes to identify intrabosinal grains in ancient deposits. These studies underestimate the presence of coeval carbanate groins affected by early recristallization and cementation. Probably these groins were considered as false extrabasinal components.

Also in the fine fraction on important accumulation in micritic groins without microstructure occur os consequence of the loss of textural characters when groin size decreases. For these reasons is advisable the analysis of textures of coeval carbonate material in coarse fractions.